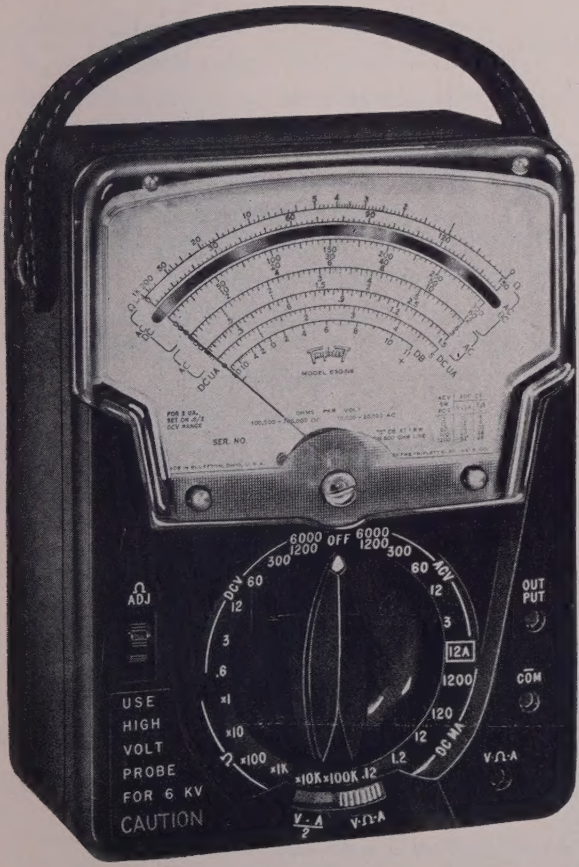
INSTRUCTION MANUAL

MODEL 630-NS
VOLT-OHM-MILLIAMMETER

MANUAL ONLY $ .50


MODEL 630-NS
SER. NO.
DC-UA
OFF
6000
1200
300
60
12
3
.6
×1
×10
×100
×1K
×10K
×100K
DCV
ACV
12A
1200
120
12
DC MA
L2
V·Ω·A
ADJ
OUT PUT
COM
USE HIGH VOLT PROBE FOR 6 KV
CAUTION

Model 630-NS

FOREWORD

With your purchase of a Model 630-NS Volt-Ohm-Milliammeter, you have made a worth-while investment in a fine instrument backed by a company which has been making instruments for over a half century. The Triplett Company stands behind your 630-NS and will give all possible assistance in its use and maintenance.

RANGES

13—D. C. VOLTS
0-0.6-3-12-60-300-1200 at 100,000 Ohms/Volt
0-0.3-1.5-6-30-150-600 at 200,000 Ohms/Volt
0-0.15 at 60 Microamperes

10—A. C. VOLTS
0-3-12-60-300-1200 at 10,000 Ohms/Volt
0-1.5-6-30-150-600 at 20,000 Ohms/Volt

10—DB—20 to +63

3—D. C. MICROAMPERES
0-60-600 at 150 M. V.
0-5-120 at 300 M. V.

7—D. C. MILLIAMPERES
0-6-60-600 at 150 M. V.
0-1.2-12-120-1200 at 300 M. V.

2—D. C. AMPERES
0-6 at 150 M. V.
0-12 at 300 M. V.

3—OHMS
0-1K-10K-100K (4.4-44-440 at center scale)

3—MEGOHMS
0-1-10-100 (4400-44,000-440,000 Ohms center scale)

10—OUTPUT
On all AC Volt ranges

GENERAL FEATURES

Accuracy ±1½% on all DC ranges, temperature compensated over a range of 0 to 50°C.

±3% on all AC ranges at 60 cps for a sine wave (see frequency response specifications).

±2% of DC scale for Ohms measurements (with a new battery).

All accuracies are in percent of full scale. For greatest accuracy the instrument should be used in the horizontal position.

Frequency Response AC voltage ranges up to and including 300 volt range all frequency compensated to ±5% from 30 cps to 20KC.

Fuse Protection The 630-NS is provided with a fuse which protects the ohmmeter ranges from accidental damage and misuse. A spare fuse is included for ease of replacement in the field.

Meter Protection Meter movement protected against heavy overload by use of germanium diodes.

Scale 4.5" long. AC and DC use same single scale with exception of 1.5 and 3 Volt AC. The single scale is made possible by the high efficiency of the rectifier. Mirror used to eliminate parallax.

Batteries packed separately. See page 19 for installation.

Test Leads One red and one black lead supplied, each 48" long. Two push-on type alligator clips supplied. Banana type plug for low resistance contact.

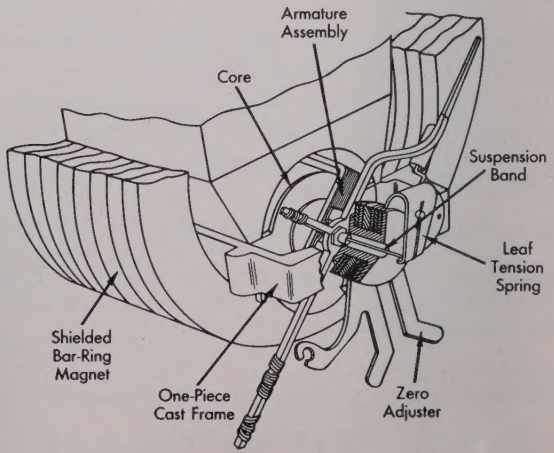
Accessories Four rubber feet are supplied to fit into four holes provided in the rear of the tester case.

Size 3-11/32" x 5½" x 7½". **Weight** Approx. 4 lbs.

GENERAL DESCRIPTION AND FAMILIARIZATION

The model 630-NS is a combination multi-range measuring instrument offering several functions heretofore unavailable in the conventional Volt-Ohm-Milliammeter. This instrument was designed for those who require less loading effects on circuits under test, better accuracy, measurements over a multiplicity of ranges and frequencies together with greater dependability and simplicity of operations. The following notes may be helpful in understanding some of the new functions of this instrument.

The indicating portion of the 630-NS is actuated by the latest concept in instrumentation, namely, a taut band suspension meter (shown below). This meter, by omitting conventional pivots, bearings and hairsprings, provides the following advantages:



1. Increased sensitivity and repeatability (5 microamperes full scale or 200K ohms per volt) by elimination of friction between pivots and bearings.
2. Greater ruggedness and durability as no moving parts are in contact and the elimination of the hairspring prevents snagging and tangling. The tension spring acts as a built in shock absorber.
3. Temperature variations can not cause sticky operation of the pointer.

Reference to the illustration will assist in understanding the principle of operation. The moving coil floats in the magnet by virtue of the suspension bands which are held in tension by a conical spring. These bands, which are fabricated of a precious metal alloy, provide torque and carry the current to the moving coil. The moving coil assembly is held by a rigid one piece die cast frame in a large self-shielded "Bar Ring" magnet.

For greater accuracy it is usually best to select a range such that the meter will read in the upper half of the scale. On the model 630-NS, all voltage and current ranges can be split in half by a simple slide switch located below the range knob, thus permitting best scale utilization.

The model 630-NS incorporates special germanium diodes to prevent damage to the meter movement on accidental overloads. Since most resistors will withstand quite severe instantaneous overloads, it is usually the meter movement that is damaged on overload in conventional multi-meters. Overloads of 1000 times have been applied to the meter movement of the model 630-NS without affecting accuracy.

Compensation of the AC Volt ranges provides greater accuracy at the audio frequency ranges.

At the higher frequencies it is suggested that you use the alligator clips to clip the lead to the circuit and keep the leads as far away from the chassis as possible to avoid any capacity effects.

Measuring DC Volts

Rotate the selector switch to the appropriate range for DC volts. Always start with the highest range if in doubt as to the approximate voltage. In choosing ranges, endeavor to have the readings fall in the upper, or right hand, half of the scale for greatest accuracy.

Plug the black test lead into the "COM" jack and the red lead into the V-Ω-A jack as shown on page 7.

CAUTION on DC Volts do not measure DC voltages having a high AC component.

For measuring 3000 volts or 6000 volts, a special Hi Voltage Probe is to be used, plugging it into the V-Ω-A jack.

Connect the test prods ACROSS the voltage source. The red lead is positive. Where polarity is difficult to determine, the meter may read backwards. No damage will be done if this occurs. Simply reverse the leads.

All DC ranges are read on the two black center scales; one directly above the mirror, the other just below the mirror.

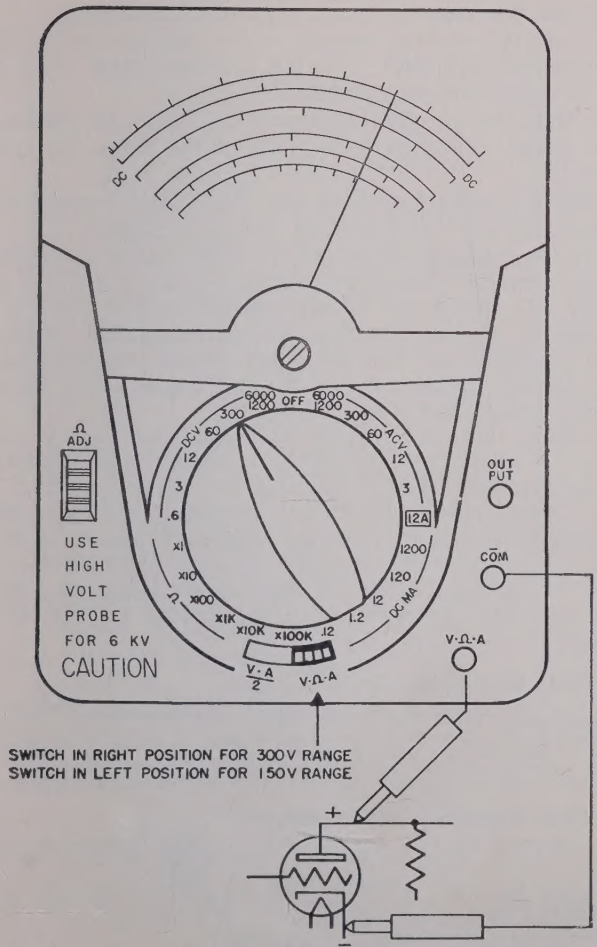
With Slide Switch In V-Ω-A Position:

The full scale reading of the instrument is identical to that indicated by the large range switch knob. Thus with the range switch knob at 3 note that the 3 volt range is read on the 300 volt scale simply by dropping two zeros (i. e. dividing by 100). Other ranges are read similarly by adding or omitting zeros as required. The meter sensitivity is 100,000 ohms per volt with slide switch in V-Ω-A position.

With Slide Switch In $\frac{V \cdot A}{2}$ Position:

The instrument will read exactly half of the value indicated by the large range switch knob. Thus with the range knob set at 300, the meter actually will read 150. The scale immediately above the mirror is used for 0-150 volts. With the range switch knob set on 60, the meter will read 30 volts full scale. Read this on the 300 volt scale by dropping one zero (i e. dividing by 10). Other ranges are handled in a similar fashion. The meter sensitivity is 200,000 ohms per volt with the slide switch in $\frac{V \cdot A}{2}$ position.

To read 0-0.15 DC Volts full scale rotate the selector switch to the .12 DC MA position and the slide switch to the V-A/2 position. The meter will now read 0 to 150 Millivolts directly on the 0-150 scale.



CAUTION: For maximum safety do not handle tester or leads when connected to high voltages. Make certain that no condensers are charged by a high voltage.

Measuring AC Volts

Rotate the selector switch to the appropriate range for AC volts. Always start with the highest range if in doubt as to the approximate voltage.

In choosing ranges, endeavor to have the reading fall in the upper, or right hand, half of the scale for greatest accuracy.

Plug the black test lead into the "COM" jack and the red lead into the V-Ω-A jack as shown on page 9.

For measuring 3000 volts or 6000 volts, a special Hi Voltage Probe is to be used, plugging it into the V-Ω-A jack.

The AC range up to and including 300 volts is compensated for frequencies from 35 cps to 20 KC. Within this range an additional 5% accuracy should be allowed, primarily for the higher ranges and frequencies. The lower frequencies will exhibit negligible error.

Connect the test probes ACROSS the voltage source, As there is no polarity on AC, the red and black leads may be interchanged without causing the meter to read backwards. When measuring audio frequency voltages connect the common lead to the lowest potential in respect to ground.

All AC ranges are read on the two black center scales except 6V, 3V and 1.5V. For greater accuracy two separate red scales have been provided to read 6V-AC, 3V-AC, and 1.5V-AC.

With Slide Switch In V-Ω-A Position:

The full scale reading of the instrument is identical to that indicated by the large range switch knob. Thus with the range switch knob at 1200 note that 1200 volts range is read on the 12 volt range by adding two zeros (by multiplying your reading by 100) there are scales provided for 1.5, 3, 6, 12, 60, 150 and 300. Other ranges are read similarly by adding or omitting zeros as required.

The meter sensitivity is 10,000 ohms per volt with slide switch in V-Ω-A position.

With Slide Switch In $\frac{\text{V-A}}{2}$ Position:

The instrument will read exactly half of the value indicated by the large range switch knob. Thus with the range knob at 300, the meter actually will read 150.

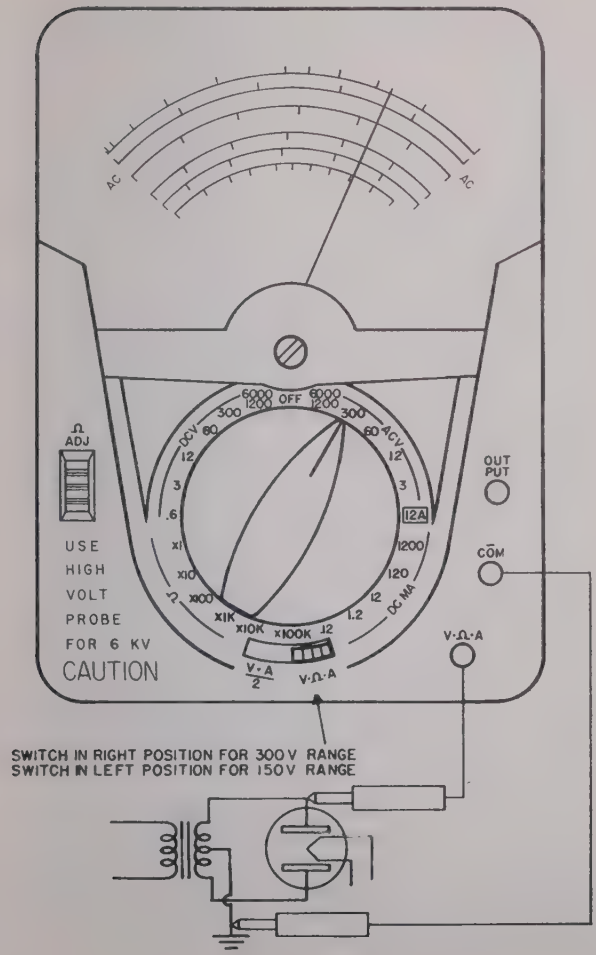
The scale immediately above the mirror is used for 0-150 volts. With the range switch knob set on 60, the meter will read 30 volt full scale. Read this on the 300 volt scale by dropping one zero (i. e. dividing by 10).

Other ranges are handled in a similar fashion.

The meter sensitivity is 20,000 ohms per volt with the switch in this position.

CAUTION: For maximum safety do not handle tester or leads when connected to high voltages.

Measuring AC Volts



Measuring DC Resistance

Rotate the selector switch to the appropriate range for ohms determined from the following chart:

To read ohms the slide switch must be in the right or V-Ω-A position.

0-1,000	ohms	X1
0-10,000	ohms	X10
0-100,000	ohms	X100
0-1,000,000	ohms	X1K
0-10,000,000	ohms	X10K
0-100,000,000	ohms	X100K

Plug the black test leads into the "COM" jack and the red lead into the V-Ω-A jack as shown on the opposite page.

Short the test probes together and adjust the Ω-ADJ control until the meter pointer reads 0 on top red ohms scale.

Connect the test probes across the resistor as shown. If the resistor is wired in a circuit, disconnect one end of the resistor before taking the reading.

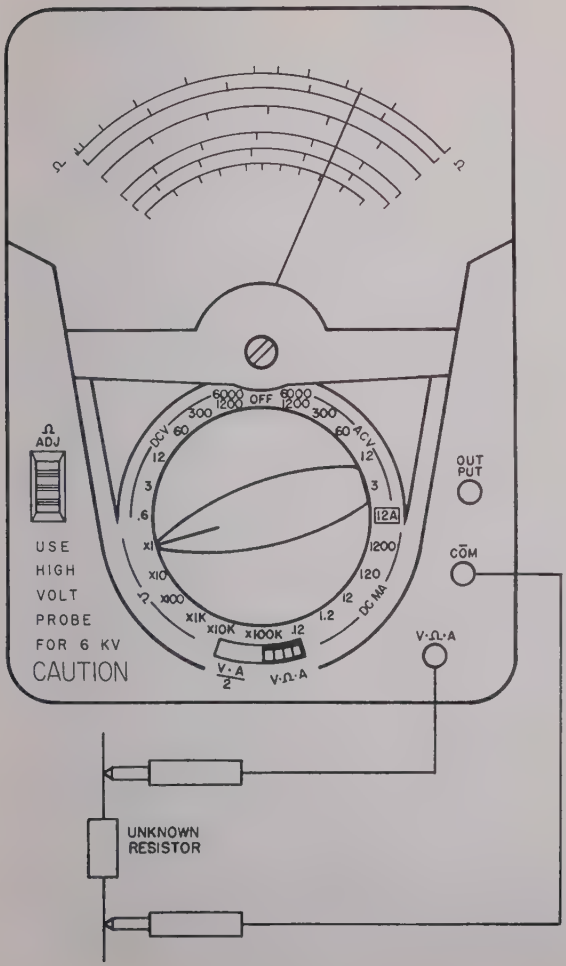
Each time an ohm range is changed, it is well to check the zero setting as outlined in paragraph above.

The basic scale 0-1K (0-1000 ohms) is used for reading all ohm ranges. Simply multiply the scale numbers by 10, 100, 1K, 10K, 100K as indicated by the selector switch setting.

It should be kept in mind that in the measurement of resistance a current is passed through the unknown resistor. Generally this current is so small as to be negligible. However, on the XI range fairly high current is employed.

CAUTION: On the X1 ohm position reading at 0-ohms the current drain from the 1.5 volt battery is 340 MA. It is desirable to make a practice of using one of the higher ohm ranges for general continuity or circuit testing to extend the life of the batteries.

Since the scale of an ohmmeter is non-linear, the accuracy of the reading cannot be expressed as a per cent of full scale. Ohmmeter accuracy is generally referred to a linear scale such as the DC volt scale. Thus ±3% ohmmeter accuracy means an allowable ±1.8 division on the 60 division DC scale. For example 2 ohms could read from about 1.75 to 2.3 ohms and be within tolerance.


Ω
Ω
Ω ADJ
USE
HIGH
VOLT
PROBE
FOR 6 KV
CAUTION
OFF
DCV
ACV
DC MA
12A
OUT PUT
COM
V·Ω·A
V·A
2
UNKNOWN
RESISTOR

Measuring DC Current

Rotate the selector switch to the appropriate range for DC current. Always start with the highest range if in doubt as to the approximate current.

In choosing ranges, endeavor to have the readings fall in the upper, or right hand, half of the scale for greatest accuracy.

Plug the black test probe into the "COM" jack and the red probe into the V-Ω-A as shown on opposite page.

Connect the test probes in series with the circuit to be measured. Do not test directly across any potential circuits as this may burn out the shunt. The red lead is positive. Where polarity is difficult to determine, the meter may read backwards. No damage will be done if this occurs. Simply reverse the leads.

All DC current ranges are read on the scale just below the mirror (except the 5 UA range).

With Slide Switch in V-Ω-A Position:

The full scale reading of the instrument is identical to that indicated by the large range switch knob. Thus with the range switch knob at 120 note that the 0-120 Milliamperes is read on the 12 Milliampere scale simply by adding one zero (or multiply by 10). Other ranges are read similarly by adding or omitting zeros as required.

With Slide Switch In $\frac{V \cdot A}{2}$ Position:

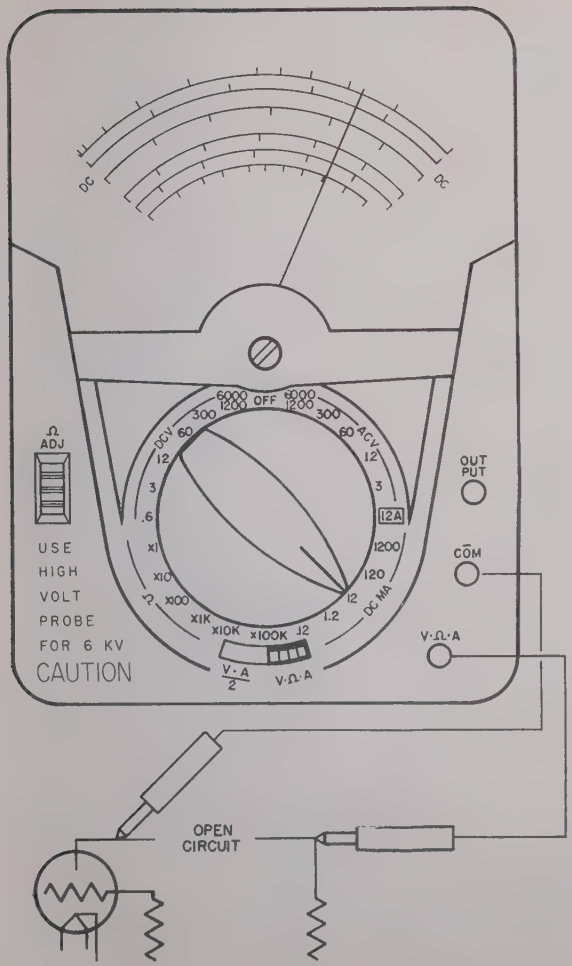
The instrument will read exactly half of the value indicated by the large range switch knob. Thus with the range knob set at 120 the meter actually will read 60 Milliamperes.

Other ranges are handled in a similar fashion.

To read 5 DC Microamperes full scale rotate the selector switch to the .6 DC Volt position and the slide switch to the V-A/2 position. The meter will now read 0 to 5 Microamperes (at 300 MV) on the special "DC UA" scale.

CAUTION: Turn off the power before connecting the meter to the circuit. Do not handle the tester or leads in high voltage circuits.

Measuring DC Current



Measuring Output Volts (DB)

Output is generally measured in units called the decibel, a terminology used to indicate power levels in amplifiers or telephone work. The DB scale on your meter is based on the voltage developed across a 600 ohm line when .001 watts is dissipated in the line. Do not confuse the DB with the VU (Volume Unit).

Rotate the selector switch to the appropriate AC volt range, see page 8. Refer to the small chart on the meter dial for the range to use. Always start with the highest range if in doubt as to the approximate number of decibels.

Normally it is recommended output be measured by plugging the black test lead into the "COM" jack and the red lead into the "OUTPUT" jack, using the black or com. lead to connect to the lowest potential in respect to ground.

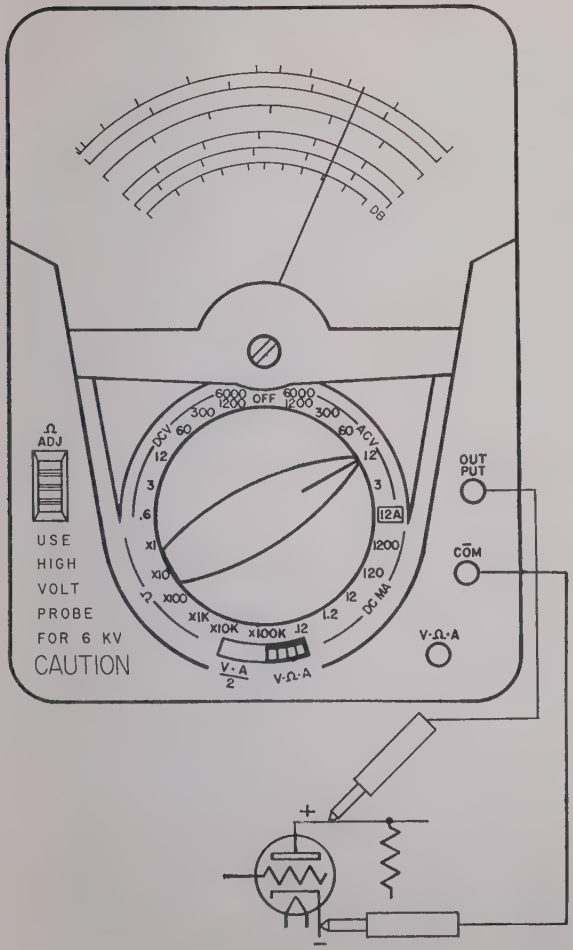
Often a DC voltage is present in the circuit where output is to be measured. The extra jack marked "OUTPUT" with a .1 mfd condenser in series is provided to block the DC.

The condenser impedance is generally disregarded in most measurements. Where no DC is present, this output voltage can be read accurately by using the 630-NS as a regular AC voltmeter (i. e. by plugging the red lead into the "V-Ω-A" jack instead of "OUTPUT").

Connect the test prods across the plate circuit or 600 ohm line.

Read all DB ranges on the bottom black scale, with the small chart on the meter dial. For example, when the selector switch is set on the 3 AC volt range and the slide switch in V-Ω-A position, the DB scale is direct reading. When on the 12 AC volt range, add 12 to each number on the DB scale, thus with the meter reading –2, the actual DB reading is +10 DB.

If line impedance is not 600 ohms (as in speaker voice coils) the readings will be only relative. (See page 18).


DB
Ω ADJ
USE HIGH VOLT PROBE FOR 6 KV
CAUTION
OFF
DCV
ACV
12A
DC MA
Ω
OUT PUT
COM
V·Ω·A
V·A 2
+
−

OPERATION

Measuring Capacity

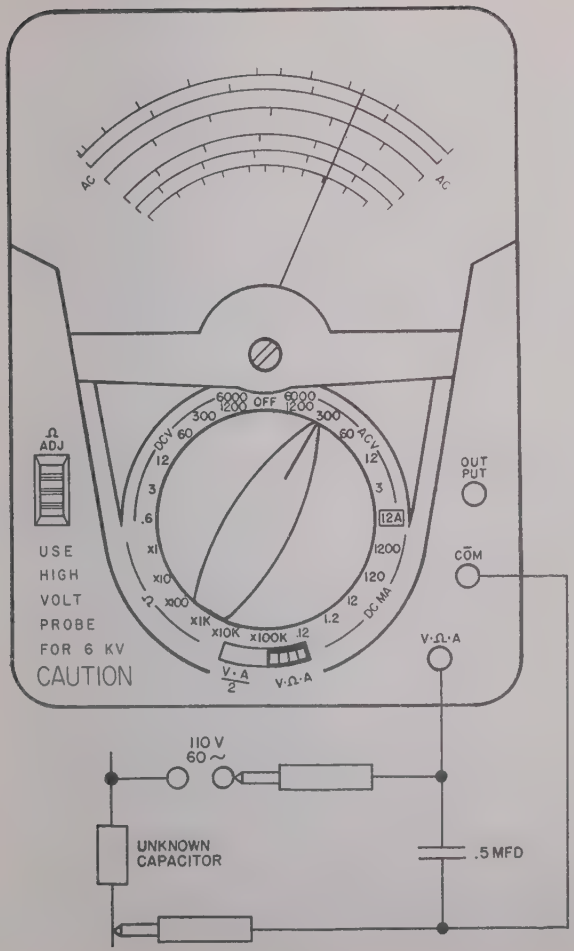
Your 630-NS can be used to measure capacity by the arrangement shown on opposite page. For such measurements the tester is set up as an AC voltmeter.

Use the following chart to determine the AC voltage range to use. ALWAYS start with the selector switch on the 300 volt range for if the condenser is shorted, serious damage may result to the meter when on a low range.

To Measure MFD	Set Selector Switch to	Deflection in AC Volts
.002	3 ACV	.45
.004		.83
.006		1.25
.008		1.65
.010		2.10
.020	12 ACV	4.3
.04		7.7
.05		9.7
.08	60 ACV	14.5
.10		17.5
.2		30.0
.4		45.0
.6		57.0
.8	300 ACV	65.0
1.0		75.0
2.0		85.0
5.0		95.0
10.0		100.0

CAUTION: Do not attempt to use this test on electrolytic condensers.

Measuring Capacity



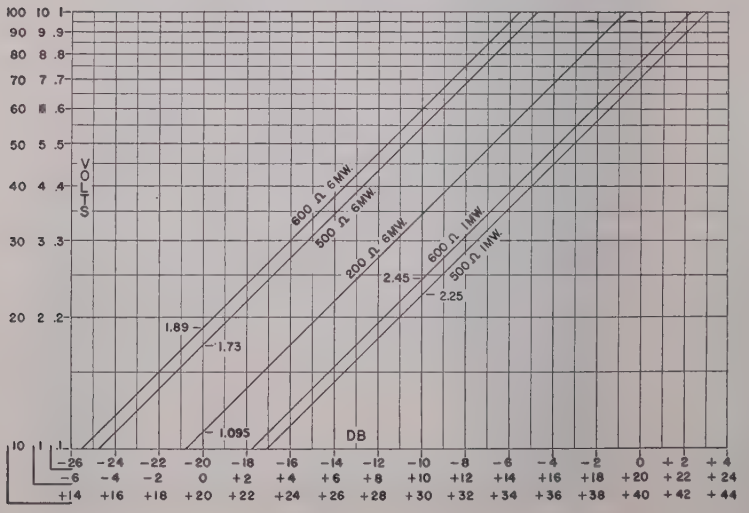
A. F. or Decibels

Audio output generally is measured in units called Decibels, a terminology used to indicate audio power levels in amplifiers or telephone work. Zero DB is set at .775 Volts, this being the voltage developed across a 600 Ohm line when .001 Watt is dissipated in the line.

DO NOT confuse the DB with the VU (Volume Unit.) The VU is based on .001 Watt dissipated in a 600 ohm line and is measured with a meter having special ballistic characteristics.

Decibels are measured by means of the Black DB Scale. Leads connected as shown on page 15.

For reading DB other than 600 ohm line use chart below.



MAINTENANCE

Battery Replacement

Two batteries are used for the ohmmeter circuits, a 1.5 volt Eveready No. 950 or equivalent and a 1.5 volt Eveready No. 915 or equivalent.

When the meter pointer can no longer be adjusted to zero (see page 10) ohms on the ΩX1, ΩX10, ΩX100, or ΩX1K ranges, replace the No. 950 volt battery.

When the meter pointer can no longer be adjusted to zero ohms on the ΩX10K, and ΩX100K range, replace the No. 915 volt battery.

To replace batteries, remove the four screws in the bottom of the case and lift panel from the case. Remove the old battery and replace with a new one.

Fuse Replacement

A one ampere fuse is incorporated in the ohm circuits for protecting the ohm circuit when it is accidentally placed across high voltage. A spare fuse is attached to unit inside the tester.

Note: This fuse is in series with ohmmeter circuit and is physically mounted on the back of the meter housing.

Caution: Use only the fuse listed on the parts list. The substitution of other values, types or manufacturers may change the accuracy of the X1 ohmmeter range.

Cleaning Plastic Window

The plastic window has been treated at the factory to dissipate static charges. If cleaning is required, use cotton dipped in a solution of common household detergent and water. After cleaning, allow the solution to dry without rubbing.

Care

Avoid placing your tester on a bench where machine tools are used or severe vibration is encountered.

If the unit has not been in use for a long period of time, rotating the switch in both directions several times will wipe the contacts clean for good contact.

In use, don't take chances on overloading the resistors or shunts. If in doubt as to the approximate reading always start with the highest range.

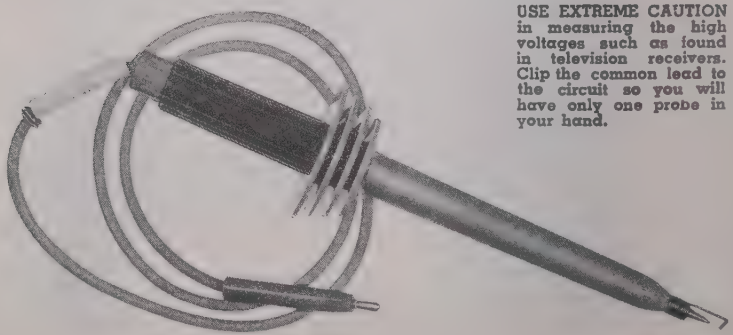
Turn the selector switch to OFF when the unit is to be carried. With the selector switch in the OFF position the meter is damped and this will prevent wild swinging of the pointer.

ADDITIONAL MEASUREMENTS

Measuring Kilovolts

For measuring the high voltage employed in television receivers and in other applications, an external probe is available. To use the D. C. Kilovolt probe set the range and slide switches to the positions shown below for the probe you are using. Plug the high voltage probe into the V-Ω-A jack and use the black standard test lead in the "COM" jack.

Kilovolt Probe	Measured Voltage	Set Range Switch on	Set Slide Switch at	Read on Scale	Multiply by
0-6KV DC	0-6KV DC	6000V DC	V-Ω-A	60V	100
0-6KV DC	0-3KV DC	6000V DC	$\frac{\text{V-A}}{2}$	300V	10
0-30KV DC	0-30KV DC	3V DC	V-Ω-A	300V	100
0-30KV DC	0-15KV DC	3V DC	$\frac{\text{V-A}}{2}$	150V	100
0-6KV AC	0-6KV DC	6000V AC	V-Ω-A	60V	100
0-6KV AC	0-3KV DC	6000V AC	$\frac{\text{V-A}}{2}$	300V	10
0-30KV AC	0-30KV AC	3V AC	V-Ω-A	3V AC	10,000
0-30KV AC	0-30KV AC	3V AC	$\frac{\text{V-A}}{2}$	1.5V AC	10,000



USE EXTREME CAUTION in measuring the high voltages such as found in television receivers. Clip the common lead to the circuit so you will have only one probe in your hand.

Measuring High DC Current

External plug-in shunts are available to extend the DC current ranges of your Model 630-NS from the self-contained 0-12 amps range to 0-30 amps. External portable shunts up to 120 amperes also are available. See paragraph on accessories.

Set the 630-NS range switch to the 12 Ma position and plug the desired external shunt into the COM and V-Ω-A jacks. Connect the line to be measured to the binding posts on top of the shunts. The external portable shunts are too large to plug into the panel and must be connected to the panel jacks by the leads furnished with the shunts.

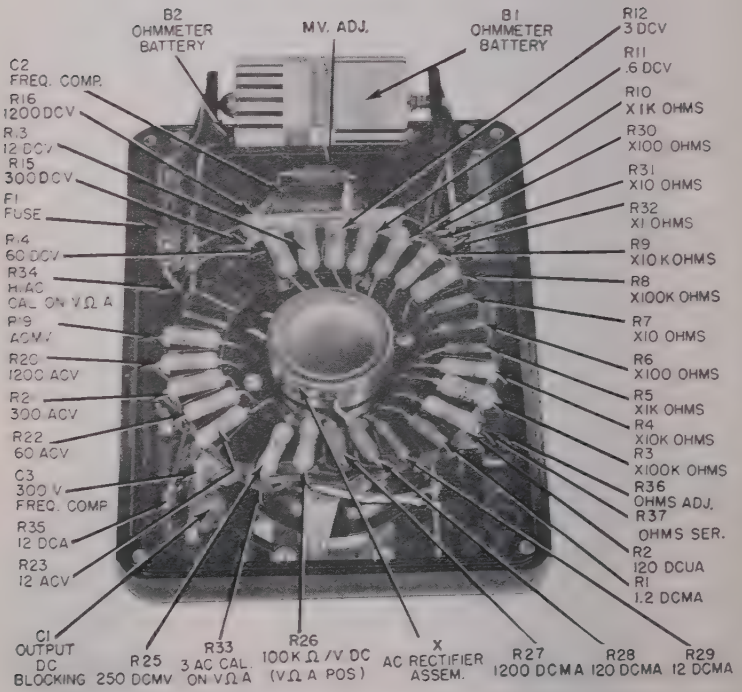
Accessories

The following accessories for your Model 630-NS are available from your distributor.

Item	Part No.
DC Hi-Voltage probe 0-6 Kv	79-229
AC Hi-Voltage probe 0-6 Kv	79-230
DC Hi-Voltage probe 0-30 Kv	79-228
AC Hi-Voltage probe 0-30 Kv	T-79-152
Plug-in external shunt 0-30 DC Amp, 300 Mv	91-570
Portable external shunt 0-60 DC Amp, 300 Mv	91-567
Portable external shunt 0-120 DC Amp, 300 Mv	91-568
Clamp-On Ammeter Adapter Model 10	60-A-211
Lead Assembly No. 611 (used in connection with Model 10)	79-A-160
Line Separator, Model 101 (used in connection with Model 10)	60-A-218

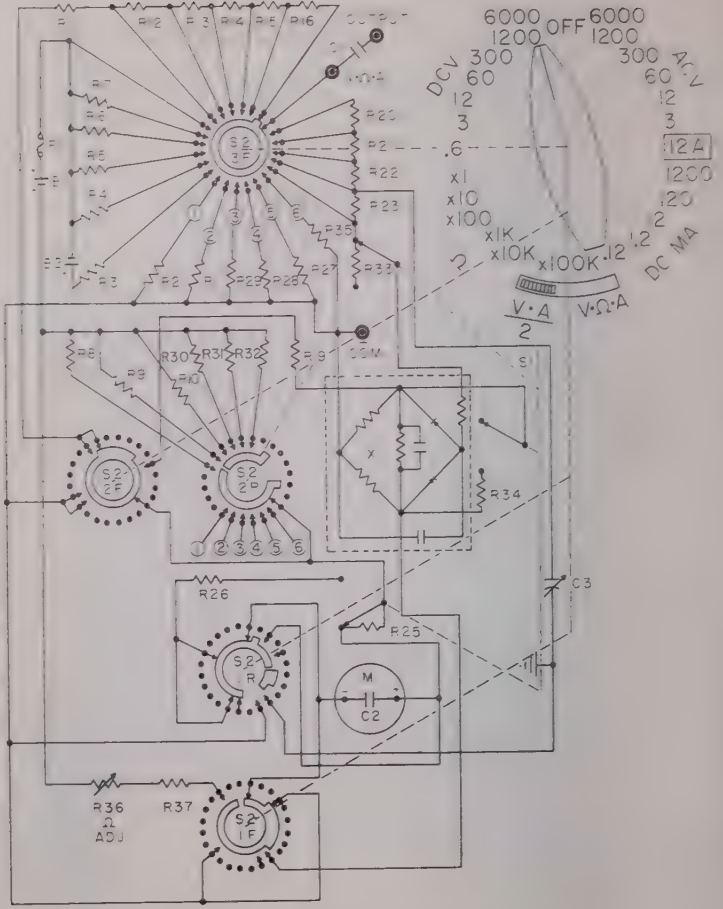
INTERIOR VIEW

PARTS LOCATION



REF. NO.	REQ.	NAME	DESCRIPTION	TRIPLETT NO.
B1	1	Battery	1.5V Burgess #2 or Neda 813	T-2426-1
B2	1	Battery	1.5V Eveready #915 or Neda 815	T-2426-3
C1	1	Capacitor	0.1 MFD, 400 V, paper tubular	T-43-69
C2	1	Capacitor	1 MFD, 200 V, Aerovox P8292ZN	T-43-176
C3	1	Capacitor	Arco #464, 25—280 MMFD	43-250
F1	2	Fuse	Littelfuse #312001, 3AG 1A	3207-15
M	1	Meter	5 Micro-amps, 150 millivolts	T-52-1602
R1	1	Resistor	W. W. 252.1 ohms, ±¼%	15-3994
R2	1	Resistor	2727 ohms, ½W, ±½%, Film Type	15-3995
R3	1	Resistor	257K ohm, ½W, ±½%, Film Type	15-3964
R4	1	Resistor	7330 ohm, ±½%, Film Type	15-3975
R5	1	Resistor	732 ohm, ½W, ±1%, Film Type	15-4119
R6	1	Resistor	71 ohm, ½W, ±1%, Film Type	15-4125
R7	1	Resistor	6.3 ohm, W. W. ±¼%	15-3970
R8	1	Resistor	615K ohm, ½W, ±½%, Film Type	15-3965
R9	1	Resistor	43.7K ohm, ½W, ±½%, Film Type	15-3967
R10	1	Resistor	3720 ohm, ½W, ±½%, Film Type	15-3966
R11	1	Resistor	30K ohm, ½W, ±½%, Film Type	15-3990
R12	1	Resistor	240K ohm, ½W, ±½%, Film Type	15-1552
R13	1	Resistor	900K ohm, ½W, ±½%, Film Type	15-3823
R14	1	Resistor	4.8 Meg ohm, ½W, ±½%, Film Type	15-1542
R15	1	Resistor	24 Meg ohm, 2W, ±½%, Film Type	15-4238
R16	1	Resistor	90 Meg ohm, 2W, ±½%, Film Type	15-4237
R19	1	Resistor	36K ohms, ±½%, ½W, Film Type	15-3991
R20	1	Resistor	9 Meg ohm, ½W, ±½%, Film Type	15-1541
R21	1	Resistor	2.4 Meg ohm, ½W, ±½%, Film Type	15-2513
R22	1	Resistor	480K ohm, ½W, ±½%, Film Type	15-2544
R23	1	Resistor	90K ohm, ½W, ±½%, Film Type	15-2543
R25	1	Resistor	30K ohm, ½W, ±½%, Film Type	15-3990
R27	1	Resistor	W. W. .249 ohm, ±¼%	15-3993
R28	1	Resistor	W. W. 2.5 ohms, ±¼%	15-3235
R29	1	Resistor	W. W. 25 ohms, ±¼%	15-2904
R30	1	Resistor	370 ohm, ½W, ±½%, Film Type	15-3973
R31	1	Resistor	37.4 ohm, ½W, ±½%, Film Type	15-3971
R32	1	Resistor	W. W. 3.74 ohms, ±¼%	15-3969
R33	1	Resistor	1K ohms, ±5%, ½W composition	3711
R34	1	Resistor	1 Meg ohm, ±5%, ½W, composition	15-824
R35	1	Shunt	6 Amp, 150 millivolt ±¼%	90A-713
R36	1	Resistor	100K Variable	16-158
R37	1	Resistor	150K ohm, ½W, ±10% composition	26U1-½-150K
R26	1	Resistor	60K ohm, ½W, ±½%, Film Type	15-3471
S1, S2	1	Switch	3 deck, 24 position, 1 deck 18 pos., without resistors	22A-456
S1, S2	1	Switch	3 deck, 24 pos., 1 deck 18 pos., with resistors	22-452
X	1	Rectifier	Assembly	T-2250A-54
	1	Knob	Molded, selector switch (with clip)	34B-62
	1	Knob	Molded, slide switch	T-34B-47
	1 pr.	Leads	Banana type	T-79-127
	1	Case	Phenolic, with handle	T-10-784
	1	Front	Clear plastic with zero adj.	T-10-1225
	1	Ball	Bearing ⅛D, slide switch	10779
	1	Spring	Helical, ball retaining	T-42-148
	1	Plate	Slide type, knob retaining	10784
	3	Contact	Jack	8944
	1	Clip	Shunt retaining	T-2451-6

CIRCUIT DIAGRAM



ADDITIONAL APPLICATIONS

In The Home

When your refrigerator motor fails to "kick out" the starting winding, use the 630-NS to measure the AC line voltage. If the voltage is below 100 volts, notify your power company.

If your electric stove does not seem to heat quickly enough, measure the voltage input to the stove with all burners turned on and again with all burners turned off. If the difference between these two voltages is 10 or 15 volts, the power cable to the stove has defective connections or is not of large enough current carrying capacity.

Blown fuses sometimes do not visibly indicate they are burned out. With your 630-NS, measure the voltage ahead of and behind the fuse. Voltage ahead of the fuse but no voltage following indicates a blown, defective, or loose fuse. Sometimes it is easier to remove the fuse and measure its resistance. This should be substantially zero if the fuse is good.

Your 630-NS is handy for locating trouble in desk and floor lamps. Pull the plug from the wall socket and check for a faulty cord, plug, switch, socket, or bulb by measuring resistance on the Ω-X1 range. 100 watt 120 volt bulbs should read 10 to 20 ohms. 50 watt 120 volt bulbs should read 20 to 40 ohms.

For the Radio Man

In addition to all common voltage, current, and resistance measurements used in servicing radios, the high sensitivity of your 630-NS is well adapted to measuring AFC, AVC, bias and FM discriminator voltages.

Considerable trouble is had with leakage in automobile radio antennas (due to moisture). Your 630-NS with the high ohm range 0-100 meg. is ideal to check this leakage. Disconnect the antenna from the receiver before making this check.

In The Industrial Plant

Your 630-NS will be a big help in checking voltage drop caused by adding that extra machine on the already overloaded line. Correcting this will often save time later when a rush comes out and the line "just happens" to burn up.

First measure the voltage at the machine with the machine turned off; then again with the machine in operation. If the voltage is proper with the machine off but low with the machine in operation, the circuit wiring or transformers have too small a capacity. If the voltage is low even with the machine off, the circuit is probably already overloaded and the machine should be wired into another circuit.

Equipment using automatic electric controls can be checked with the 630-NS. Faulty relay or control action is often caused by low voltage applied to the relay or control. This low voltage in turn, may be caused by burned or dirty contacts on the control device. Use the ΩXI range to check for high or unstable contact resistance.

When a phone on your dial telephone system fails, measure the line current and the voltage to the particular relay in question. If the voltage is proper, measure the contact resistance of the relay contacts using the ΩXI scale on your 630-NS. If this resistance is over a fraction of an ohm or if the resistance seems to waver, clean and adjust the relay contacts.

In The Garage

Fuses in the automobiles have a tendency to look perfectly good and yet not function due to corrosion under the metal end cap. Measure the voltage ahead and behind the fuse to determine a defective unit. Or remove the fuse and measure its resistance. Anything over a fraction of an ohm is too high.

Checking automobile wiring, light switches, heaters, radios, etc., can be speeded up by simple use of your 630-NS.

In The Laboratory

Your 630-NS is built with all precision, non-aging resistors. The specially designed switch and special banana type plugs insure lasting accuracy. The meter with a taut band suspension and a well designed stable magnet further makes the 630-NS a must for the laboratory.

Special Applications

The unusually high range ohmmeter in your 630-NS permits some indication of condenser leakage resistance. Measure as a resistor, see page 10, using the highest range. A good paper or mica condenser under 1 mfd. will indicate at the 100 Meg. mark or above. If a steady reading (taken after the initial surge required to charge the condenser) of less than 100 megohms is obtained, the condenser probably has defective insulation. Good paper condensers over 1 mfd. may read somewhat less than 100 megohms. Electrolytic condensers, should read above .1 megohm. In checking electrolytic condensers, the black test lead (COM jack) should be connected to the negative terminal of the condenser.

Checks of insulation resistance for motors, generators, telephone cables, power cables, etc., can be made on the high ohmmeter range of your 630-NS. The actual value of resistance may vary from a few megohms to over 100 meg., depending on weather conditions and quality of insulation. The best method, therefore, is to make periodic checks on important cables or equipment and observe the trend in readings. As the readings tend to be lower and lower, it is time to start drying out the equipment or determine the cause of deterioration. Dirt, mice, or foreign matter can sometimes cause excessive leakage.

Audio Specialist

The model 630-NS is the ideal instrument for audio engineering and maintenance. The frequency compensation in this instrument will allow you to read volume level from 35 cps to 20KC.

TRIPLETT WARRANTY AND CONDITION OF SALE

The Triplett Electrical Instrument Company warrants instruments manufactured by it to be free from defective material or factory workmanship and agrees to repair or replace such instruments which under normal use and service, disclose the defect to be the fault of our manufacturing. Our obligation under this warranty is limited to repairing or replacing any instrument or test equipment which proves to be defective, when returned to us transportation prepaid within ninety (90) days from the date of original purchase.

This warranty does not apply to any of our products which have been repaired or altered by unauthorized persons or service stations in any way so as, in our judgment, to injure their stability or reliability or which have been subject to misuse, negligence or accident or which have had the serial number altered, effaced, or removed. Neither does this warranty apply to any of our products which have been connected, installed, or adjusted otherwise than in accordance with the instructions furnished by us. Accessories including all vacuum tubes and batteries not of our manufacture used with this product are not covered by this warranty.

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Parts will be made available for a maximum period of five (5) years after the manufacture of this equipment has been discontinued. Parts include all materials, charts, instructions, diagrams, accessories, et cetera, which were furnished in the standard or special models.

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